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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (canceled)

2. (currently amended) A multifunction apparatus for monitoring and reporting electric signals on electric circuits, comprising:

a first system for receiving input data from at least a field transformer or a line post sensor;

a digital signal processor (DSP) system coupled to said first system;

a microprocessor system coupled to said DSP system;

said first system in combination with said DSP system and said microprocessor system perform metering, power quality, digital fault recording (DFR) and supervisory control and data acquisition (SCADA) functions;

wherein said first system comprises:

a plurality of transformers, each transformer including its own primary winding and its own secondary winding inductively coupled thereto so that the first system includes a plurality of primary windings and a plurality of secondary windings, and each transformer operating with respect to one phase of an electric circuit; and

a plurality of switching circuits, each circuit coupled to a respective secondary winding of a respective one of the plurality of transformers operating with respect to one phase of the electric circuit and further adapted to switch to multiple positions depending on whether ~~the~~ a current flowing through ~~a~~ the primary ~~circuit~~ winding inductively coupled to the respective secondary winding of ~~a~~ that respective transformer is in a metering range or an overcurrent range.

3. (original) The apparatus of claim 2 further comprises a circuit assembly for providing normal mode surge and fast transient protection.

4. (original) The apparatus of claim 3 wherein said circuit assembly comprises a gas tube arrestor, a metal oxide varistor (MOV), a transient voltage suppressor, or a capacitor.

5. (original) The apparatus of claim 2 further comprises a circuit assembly for providing common mode surge and transient protection.

6. (original) The apparatus of claim 2 wherein a secondary circuit of each transformer includes a diode mirror circuit for providing crowbar protection against signals that are higher in absolute value than supply voltage.

7. (currently amended) A method for monitoring electric signals on electric circuits, said method comprising:

electrically coupling a monitoring apparatus to a field sensor;

feeding data from said field sensor to an A.C. subsystem of the monitoring apparatus, said A.C. sub-system comprising a plurality of transformers, each transformer operating with respect to one phase of an electric circuit and each transformer including its own primary winding and its own secondary winding inductively coupled thereto so that the A.C. sub-system comprises a plurality of primary windings and a plurality of secondary windings; and

causing switching circuits, each switching circuit being respectively coupled to a secondary winding of one of the plurality of transformers operating with respect to one phase of the electric circuit, to switch to multiple positions depending on whether a current flowing through ~~a~~ the primary ~~circuit~~ winding inductively coupled to the respective secondary winding of ~~a~~ that respective transformer is in a metering range or an overcurrent range.

8. (previously amended) The method of claim 7 further comprises:

providing a digital signal processor (DSP) sub-system to process data received by said A.C. sub-system; and

providing one or more microprocessors for at least one of (a) controlling communication software applications of the apparatus, and (b) performing supervisory control and data acquisition (SCADA) functions.

9. (original) The method of claim 8 further comprises:

providing normal mode surge and transient protection circuit between the field sensor and a primary circuit of each of said plurality of transformers; and

controlling said A.C. sub-system and said DSP sub-system by said at least one or more microprocessors.

10. (original) The method of claim 8 further comprises:

providing common mode surge and transient protection circuit between the field sensor and a primary circuit of each of said plurality of transformers.

11. (original) The method of claim 9 further comprises:

providing a crowbar protection circuit against signals that are higher in absolute value than supply voltage.

12. (original) The method of claim 11 wherein crowbar protection circuit comprises a diode mirror circuit.

13. (currently amended) A multifunction apparatus for monitoring and reporting electric signals, comprising:

a first subsystem receiving input data from at least one field sensor, said first subsystem having a plurality of transformers, each transformer operating with respect to one phase of an electric circuit and each transformer including its own primary winding and its own secondary winding inductively coupled thereto so that the A.C. sub-system comprises a plurality of primary windings and a plurality of secondary windings, and ~~one or more~~ a plurality of switching circuits, each switching circuit being respectively coupled to a secondary winding of one of the plurality of transformers operating with respect to one phase of the electric circuit, each switching circuit capable of switching to multiple positions depending on whether ~~the~~ a current flowing in ~~a~~ the primary ~~circuit~~ winding inductively coupled to the respective secondary winding of ~~a~~ that respective transformer is in a metering range or an overcurrent range;

one or more digital signal processors processing data received by said first subsystem; and

one or more microprocessors controlling said first subsystem and said one or more digital signal processors.

14. (original) The apparatus of claim 13 further comprises a circuit assembly for providing normal mode surge and transient protection.

15. (original) The apparatus of claim 14 wherein said circuit assembly comprises a metal oxide varistor (MOV), transient surge suppressor, gas tube arrestor, or a capacitor.

16. (original) The apparatus of claim 15 wherein a secondary circuit of each transformer includes a diode mirror circuit for providing crowbar protection against signals that are higher in absolute value than supply voltage.

17. (original) The apparatus of claim 13 further comprises:

a circuit assembly for providing common mode surge and transient protection.

18. (currently amended) An apparatus for monitoring electric signals on electric circuits, said apparatus comprising:

an A.C. sub-system having a plurality of transformers, each transformer operating with respect to one phase of an electric circuit and each transformer including its own primary winding and its own secondary winding inductively coupled thereto so that the A.C. sub-system comprises a plurality of primary windings and a plurality of secondary windings, and ~~one or more~~ a plurality of switching circuits, each switching circuit being respectively coupled to a secondary winding of one of the plurality of transformers operating with respect to one phase of the electric circuit;

means for electrically coupling said apparatus to a field sensor;

means for feeding data from said field sensor to said A.C. subsystem; and

means for causing said switching circuits to switch to multiple positions depending on whether ~~the~~ a current flowing in ~~a~~ the primary ~~circuit~~ winding inductively coupled to the respective secondary winding of ~~a~~ that respective transformer is in a metering range or an overcurrent range.

19. (previously amended) The apparatus of claim 18 further comprises:

a digital signal processor (DSP) sub-system to process data received by said A.C. sub-system; and

one or more microprocessors for at least one of (a) controlling communication software applications of the apparatus, and (b) performing supervisory control and data acquisition (SCADA) functions.

20. (original) The apparatus as in claim 19 further comprises:

normal mode surge and transient protection circuit between the field sensor and a primary circuit of each transformer; and

means for controlling said A.C. sub-system and said DSP sub-system.

21. (original) The apparatus as in claim 20 further comprises:

common mode surge and transient protection circuit between the field sensor and a primary circuit of each transformer.

22. (original) The apparatus as in claim 21 further comprises:

means for protecting said apparatus against signals that are higher in absolute value than supply voltage.

23. (original) The apparatus of claim 2 wherein said power quality is power quality affected by harmonic signals in a nominal range.

24.-27. (canceled)

28. (currently amended) The apparatus of claim 2 wherein one of the multiple positions corresponds to a position enabling the first system, the DSP system and the microprocessor system to perform the metering function when the current flowing through the primary ~~circuit~~ winding is in the metering range and another one of the multiple positions corresponds to a position enabling the first system, the DSP system and the microprocessor system to perform the DFR function when the current flowing through the primary ~~circuit~~ winding is in the overcurrent range.

29. (currently amended) The method of claim 7 wherein one of the multiple positions corresponds to a position enabling a processor to perform a metering function when the current flowing through the primary ~~circuit~~ winding is in the metering range and another one of the multiple positions corresponds to a position enabling the

processor to perform digital fault recording when the current flowing through the primary ~~circuit~~ winding is in the overcurrent range.

30. (currently amended) The apparatus of claim 13 wherein one of the multiple positions corresponds to a position enabling the first subsystem, the one or more digital signal processors and the one or more microprocessors to perform a metering function when the current flowing through the primary ~~circuit~~ winding is in the metering range and another one of the multiple positions corresponds to a position enabling the first subsystem, the one or more digital signal processors and the one or more microprocessors to perform a digital fault recording when the current flowing through the primary ~~circuit~~ winding is in the overcurrent range.

31. (currently amended) The apparatus of claim 18 wherein one of the multiple positions corresponds to a position enabling a processor means to perform a metering function when the current flowing through the primary ~~circuit~~ winding is in the metering range and another one of the multiple positions corresponds to a position enabling the processor means to perform a digital fault recording when the current flowing through the primary ~~circuit~~ winding is in the overcurrent range.